

MENTAL ASSOCIATIONS IN COLORED CHILDREN

by

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HISTORY OF THE PROBLEM

A knowledge of the methods and results of previous investigators of children's associations is indispensable. The first careful study of children's associations was published in 1898 by Ziehen (6). Ziehen used 45 boys of ages eight to 14. These he studied individually, chiefly by the oral method. The instructions to the subject, while similar to those used by later investigators, may have differed from them somewhat because of certain implications or suggestions. The child, upon having a word called out to him, had, as quickly as possible, to indicate that representation which immediately followed the mental content awakened directly by the stimulus word. It is evident that there is here a suggestion that the stimulus word called out to the child shall not immediately be followed by another word, but that it shall first call up an image, and that this first image shall then be followed by a second image to be designated verbally. This suggestion was, no doubt, strengthened by the further questioning of the child, since, immediately upon giving his response, he was asked whether he had thought of a definite object.

Ziehen formulated his main problem as follows: Does the association of ideas in the child as compared with the adult show a preponderance or lack of certain types of

association? To answer this question, he compared the results obtained with children with those obtained from a large number of analogous investigations with adults. He obtained a very striking and important result. With adults, as the commonest case, he found that the stimulus word awakened a general idea which in turn called up another general idea, designated by the response word. He estimated that this form of association occurred in 80 per cent of all the associations of his adults. With children, on the other hand, this association through general ideas was rare, though Ziehen says that it gradually increases in frequency with the age of the child. As by far the commonest case with children, he found that the stimulus word called up an individual or concrete idea, which called up another individual idea. Ziehen says that while it is well known that a child does not employ the same range of general ideas in his thinking as does the adult, he was nevertheless astonished to discover to what extent the individual presentations predominate in the mind of the child. He concludes that in this respect the association of ideas in the child is different from that of the adult. He concluded that adults tend to think in terms of general ideas, whereas children think in terms of concrete representations.

Ziehen was followed in his pioneer work by Meumann (2)

who studied the mental associations of over 800 school children, distributed in 19 classes, in the hope of obtaining criteria of degree of intelligence. He used four groups of 12 words each: first, concrete substantives; second, verbs; third, adjectives; fourth, abstract substantives. The words were read to a class of children by their teacher, and to each word the children had to write as a response the very first word that came into their minds. The teacher gave a few examples first. With few exceptions, the children readily comprehended the aim of the experiment. Among the eight-year-old children, however, there were a few who continually wrote words which stood in no connection with the stimulus words. Meumann presents hardly any of his actual data, and it is not clear just what method he used in arriving at his conclusions. The latter, however, are stated in great detail.

As characteristics of the associations of the less intelligent children, which serve to distinguish them from the more intelligent, Meumann mentions the following tendencies: (1) The less intelligent more often misunderstand or misinterpret the stimulus words. (2) They more often fail to write down a response. In the case of abstract substantives, they may omit 60 or 70 per cent of the responses. (3) They give a greater number of senseless

responses. The word written may be senseless or may stand in no apparent relation to the stimulus word. (4) Their responses show less mental work, or, as we might say, less thought. They take more often the form of a mere word change or rhyme, simple opposites, or words frequently named together, for example, cat - mouse. (5) Their responses are more dependent upon the connections established in their school exercises. (6) As already noted by Ziehen, their responses are more apt to deviate from the concrete associations characteristic of children, to exhibit an apparent precocity by tendencies toward general and abstract terms, and to show perseveration, of which Meumann distinguishes three kinds. First, the response word may consist in the repetition of a previous stimulus or response word. After its first occurrence, such a response stands in no apparent connection with the stimulus word. Second, and more commonly, a stimulus word starts a dominating chain of representations which then determine successive responses independently of the stimulus word. Third, the subject may hold to the same category of response, for example, a strengthening adjective. This is an index of less intelligence only when the persistent category is not typical of the age in question.

Wreschner (5), in the course of his extremely detailed

study of association, obtained data on free association with two children, one of three and three-fourth years of age. He recorded their oral responses to something over 300 words, and compared them with the responses of 20 adults, with whom he used a list of words varying in number from 57 to 503. All the responses were classified by the aid of a classification system of about 40 headings, and a comparison was then made of the percentages for adults and children under each heading. Of course the number of children used is entirely too small to give these percentages any considerable reliability. Wreschner's investigation, however, shows how greatly children may vary in the type of their associations, since, in a group of only eight boys, he distinguished three markedly different classes.

Without attempting to explain in full Wreschner's classification scheme, we shall note the main similarities and differences shown to exist between children and adults by his percentages. Adults gave over twice as many logical associations, over one-fourth of their associations being of this sort. This appears to be due to the greater frequency of association of opposites, similarities, and synonyms, and associations from effect to cause. Association of opposites is by far the commonest form of logical association among adults, and is about five times as frequent with the adults

as with the two children. Another type of association which occurred more frequently with the adults than with the children is that which Wreschner terms verbal or speech completion. It includes three sub-types: word completion, such as snow - ball; speech reminiscences, such as fox - goose; and a certain class of attributive unions, such as mother - dear. For all of these sub-types, the percentages were greater for the adults. Taken together, they constituted about one-fourth of the adults' associations, but only seven per cent of the children's.

The children, on the other hand, favored two forms of predicative connections. One of these is the reaction-word-subject type, in which the reaction word constitutes a subject of the stimulus word, such as round - circle. This form of reaction constitutes about one-fourth of the children's associations, but less than one-tenth of the adults'. The other predicative connection preferred by the children is the stimulus-word-object, in which the stimulus word is the object of the reaction word, such as sand - strew. This form of reaction constituted nearly one-tenth of the children's associations, but only one or two per cent of the adults'. The children also gave more frequently than adults associations classified as spatial-temporal localizations, for example, windy - outside; still - night. These

constituted about one-tenth of the children's associations, but only about one-thirtieth of the adults' associations. In all other respects than those mentioned no appreciable differences in association type existed between the adults and the children.

Rosanoff and Rosanoff (3) published a study in 1913 designed to answer the question, "At what age in childhood or in youth do the associational tendencies, as they are observed in normal adults, become fully developed, and what is the rate and manner of their development?" Using the Kent-Rosanoff list of 100 words, they obtained the responses of 300 school children, 25 of each age from four to 15 inclusive. In making tests the technique as originally presented could not in all cases be followed exactly; the best way seemed to be to ask the child, after his confidence had been gained and he had become composed, "What does table make you think of?" Failing to obtain a response, the examiner would select some other word such as, "What does music make you think of?" or "What does black make you think of?" In this way, eventually, a response was obtained, and it was then possible to proceed with the stimulus words in their proper order.

Rosanoff claimed that many of the stimulus words often evoked either no response at all or only some such response

as "I don't know that", or "Mama never taught me that". Such instances were recorded as failures of reaction, but at the conclusion of every test the stimulus words to which no responses were obtained were given again with a view to reducing the number of failures of reaction in every case to a practical minimum. The percentage of individual reactions in the Kent-Rosenoff adult frequency tables is 6.8. This means that to each of the stimulus words there occurred, excluding doubtful reactions, on an average of 68 responses with a frequency of only one. Now the data obtained with children were classified according to the same rules, using the adult frequency tables as a standard.

Woodrow and Lowell (4) gave the Kent-Rosenoff stimulus words to 1,000 Minneapolis school children of ages nine to 12. The children were given 100 stimulus words and their responses were compiled into association tables. Since Kent and Rosenoff had made frequency tables for adults, Woodrow and Lowell were able to take these adult frequency tables for comparison and thus drew conclusions.

Woodrow and Lowell compared their results of children's reactions with those of adults by making association type tables. These association types included contrast, dark - light; part-whole, fruit - tree; contiguity, table - dishes; adjective noun, deep - hole; verbs, table - eat; and

similarity, dark - black. Tables were made for individual responses of white children and adults. The results showed that adults gave 68 per cent more individual responses than the white children gave.

The main points established by their comparison of the mental associations of children and adults are as follows:

1. In general, children's associations differ enormously from those of adults.

2. Marked differences exist between children and adults in the frequency of various types of association. The types which occur more frequently with adults than with children are the following: contrast, superordination, coordination, part-whole, noun-abstract-attribute, participles, and cause-effect. The types which occur more frequently in children than in adults are verbs, verb-objects, noun-adjectives, adjective-nouns, pronouns, sound similarity, contiguity, and whole-part.

3. With only 39 per cent of the stimulus words is the most frequent response the same for both children and adults.

4. Children gave fewer individual responses.

5. The number of different words given in response to any stimulus word is less for children than for adults, being on the average 102 for children and 143 for adults.

OBJECTIVES

From Woodrow and Lowell's comparison of children's and adults' frequency tables, it seemed to the writer that the frequency tables for white children might not be at all well adapted to colored children. The differences between white children and white adults were marked; there were, therefore, two main objectives in making this study. The first was the development of mental association frequency tables for colored children comparable to those developed by Woodrow and Lowell for white children. The second objective was to make a comparative study of the mental associations of white children, colored children, and white adults. Since there have been no free association frequency tables for colored children, such a study should open new channels for psychological research. Moreover, in as much as the writer is comparing children of entirely different races, backgrounds, and social make-up, it will be interesting to know just what differences in mental life may exist and what may be their underlying causes.

MATERIALS

The stimulus words used in this free association test were the same as those used by Woodrow and Lowell in their association frequency tables for children. In giving the test the examiner pronounces each stimulus word to a subject

who has been instructed to respond with the first word that the stimulus word brings to his mind, or the response word. The total number of response words with their frequencies constitutes an association frequency table. Ninety of these stimulus words came from Rosenoff's list. The other ten were added by Woodrow and Lowell.

SUBJECTS

The subjects used in this test were pupils from the colored schools of Manhattan and Wichita, Kansas, and St. Louis, Missouri. Ninety-three of these subjects were from Douglas school, Wichita, 186 from L'Overture school, Wichita, 185 from Dunbar school, Wichita, and 40 from Douglass school, Manhattan, Kansas. Since many of these subjects failed to respond to some stimulus words, 30 more tests were given during the summer of 1937 to complete the 500 frequency for each stimulus word. These additional tests were given in St. Louis, Missouri, and Manhattan, Kansas. The tests were given to colored children selected from the fourth, fifth, and sixth grades. The ages selected from these classes were from nine to 12 inclusive.

The social status of these children is indicated, probably, by their parents' occupations which are listed below:

- | | |
|--------------------------|---------------------------|
| 1. House workers | 7. Chauffeurs |
| 2. Porters | 8. Maids |
| 3. Packing house workers | 9. Federal relief workers |
| 4. Painters | 10. Mechanics |
| 5. Mail carriers | 11. Cooks |
| 6. Landscapers | 12. Truck drivers |

PROCEDURE

In this investigation of the mental associations of colored children the following procedure was observed:

Before passing out the test papers, the examiner put the classes into a receptive mood by telling a joke, which got a happy response from each subject and developed a co-operative attitude. After everyone had his laugh, the explanations of the test began:

"Boys and girls, I am going to give you a test, and I want every one of you to listen closely and follow directions. I am going to give you a word, and I want you to tell me the first word that comes to your mind when you hear this word. Now, remember I want only the first word that comes to your mind when I pronounce a word. All right, what is the first word that comes to your mind when I pronounce the word : table :?" Many responses were given, and the operator complimented the children on their ability to follow directions.

"Now, boys and girls, I am going to pass out some sheets of paper, and I want each one to do just what I tell

you." (The papers were passed out to each subject.) "On the top line of your paper you will see some blank spaces. In the first blank I want you to put your full name, in the second blank your age, in the third blank write 'boy' or 'girl', which ever you are, and in the fourth blank I want you to put the occupation of your parents.

"Now, instead of telling me the first word that comes to your mind when I pronounce these words, I want each one of you to write down on this paper I have given you the first word that comes to your mind. Are there any questions before we begin?" During the test the subjects were reminded to write only the first word that came to their minds.

While giving the test, the author found that the subjects became tired after the first 50 words, so he gave the children a rest period of about seven minutes. During the rest period the test papers were turned over, and each subject was asked to lay his head on his desk. This was done so that the children's minds would be fresh for the next fifty stimulus words.

RESULTS

The colored and white children's mental associations were compared in four ways: (1) preferred responses, (2) association types, (3) individual responses, and

(4) total responses. "Free association", according to Jung (1), "is the current process generally linked up with memory-traces, which are revived by the association process." He also says, "Every association in real thinking is accompanied by an almost endless number of more or less distinct presentations." In making these free association frequency tables for colored children, the writer was endeavoring to find criteria of emotionality as indicated by responses and the trend of mental associations of colored children.

Table 1 shows the 100 stimulus words arranged in alphabetical order. The order in which they were read to the children is indicated by the numbers before the words. Under the column headed "page" is given for each stimulus word the page on which the frequency table for that word may be found.

The development of free association frequency tables for colored children should be a valuable contribution to psychological research. By compiling the colored children's association frequency tables the writer has secured data which may serve as a standard in the studies of mental associations of colored children. The response of any child to 100 stimulus words, when interpreted correctly, will afford one of the best pictures of his mental make-up that can be quickly obtained.

Table 1. Children's frequency tables

Stimulus Words	Page	Stimulus Words	Page
100. afraid	59	45. garden	38
38. anger	35	73. ghost	49
90. baby	55	40. girl	36
63. bath	46	94. green	57
29. beautiful	31	77. hammer	51
87. bed	54	14. hand	24
60. Bible	45	48. hard	39
11. black	22	70. head	48
99. blossom	59	88. heavy	55
66. blue	47	41. high	36
57. boy	43	10. house	22
55. bread	42	67. hungry	47
81. butter	52	86. joy	54
17. butterfly	25	97. king	58
47. cabbage	39	52. lamp	41
19. candy	26	59. laugh	44
39. carpet	35	58. light	44
20. chair	27	85. lion	54
98. cheese	58	72. long	49
75. child	50	83. loud	53
79. city	51	5. man	19
24. cold	28	61. milk	45
64. cottage	46	91. moon	56
2. dark	18	9. mountain	21
6. deep	20	3. music	18
82. doctor	53	35. needle	34
53. dream	41	69. ocean	48
49. eagle	40	68. priest	47
44. earth	38	93. quiet	56
8. eating	21	36. red	34
56. flag	43	27. river	30
33. foot	33	31. rough	32
76. friend	50	95. salt	57
16. fruit	25	13. school	23
12. fun	23	92. scissors	56

(Table 1. continued)

Stimulus Words	Page
62. sheep	45
15. short	24
4. sickness	19
37. sleep	34
25. slow	29
18. smooth	26
7. soft	20
46. soldier	38
43. sour	37
34. spider	33
60. square	52
51. stem	41
50. stomach	40
32. stork	32
71. stove	48
96. street	58
21. sweet	27
65. swift	46
1. table	18
84. thief	53
78. thirsty	51
89. tobacco	55
74. whiskey	50
22. whistle	27
28. white	30
30. window	31
26. wish	30
23. woman	28
42. working	37
54. yellow	42

Free association tests have been used to measure intelligence, but they have not proved successful. The main value of the free association test is not to tell how much mental ability a child has, but what kind of a mind he has. Colored children live in social surroundings different from those of white children, so there may be a difference in their mental associations. The frequency tables for colored children have enabled the writer to compare white adults and white children with colored children for determining racial difference. The stimulus words are presented in Table 2. In order to read the table one must note the stimulus word at the top of each table, such as, 2. dark. The stimulus word at the top of each table is the word which is read to the subjects. The words the subjects wrote down are the response words. The numerical values are the frequencies for the different response words.

Table 2. The frequency tables

Stimulus: 1. TABLE			
Response Words	Frequency	:	Response Words Frequency
able	1	:	food 25
chair	118	:	fork 1
cups	1	:	furniture 7
cloths	2	:	ink 1
dishes	25	:	legs 17
dinners	1	:	marble 1
eating	53	:	plates 1
egg	1	:	sit 24
eat	205	:	wood 16
		:	write 1

Stimulus: 2. DARK			
ark	1	:	moon 12
bed	3	:	music 1
black	91	:	midnight 25
color	46	:	sleep 1
blind	1	:	sleeping 1
house	1	:	states 1
home	1	:	ship 1
knife	1	:	stars 14
light	287	:	sky 1
		:	woods 11

Stimulus: 3. MUSIC			
born	1	:	playing 22
band	7	:	play 1
dance	20	:	piano 53
dancing	11	:	round 1
enjoying	1	:	radio 7
horns	1	:	saxophone 1
hear	1	:	sound 1
hum	1	:	sweet 6
learner	16	:	sang 40
lessons	8	:	study 1
melody	1	:	sing 240
noise	3	:	singing 53
notes	3	:	teach 1

(Table 2. continued)

Stimulus: 4. SICKNESS			
Response Words	Frequency	:	Response Words Frequency
bad	111	:	idle 1
bad	5	:	lied 1
die	3	:	messles 1
doctor	25	:	man 1
disease	1	:	mother 1
dinner	1	:	men 1
day	1	:	medicine 24
dead	1	:	pain 15
dying	1	:	sad 6
death	4	:	sick 4
heart	2	:	sister 1
health	3	:	suffering 1
helpful	3	:	unconscious 1
hospital	49	:	well 11
illness	42	:	weak 1
ill	179	:	weakness 1

Stimulus: 5. MAN			
angry	1	:	lady 1
big	1	:	many 1
bad	11	:	male 16
child	11	:	men 30
colored	18	:	person 27
coat	1	:	porter 1
clothing	16	:	pants 1
coming	1	:	Ruth 1
daddy	11	:	Richard 1
do	1	:	send 1
fussing	1	:	strongest 1
father	6	:	shirt 11
gentleman	27	:	strong 15
grown	14	:	tale 1
human	53	:	trousers 1
hat	1	:	tie 1
husband	16	:	work 143
herd	18	:	walk 1
head	1	:	woman 29
jack	1	:	worker 10

(Table 2. continued)

Stimulus: 6. DEEP			
Response Words	Frequency	:	Response Words Frequency
arm	2	:	leap 1
black	1	:	large 43
clean	1	:	lone 1
dig	1	:	muddy 1
drown	1	:	ocean 17
down	64	:	pack 1
fall	3	:	river 62
far	2	:	swing 1
fear	1	:	sea 26
grass	1	:	sink 1
ground	1	:	water 76
hole	137	:	well 27
leg	1	:	week 1
low	16	:	weigh 10

Stimulus: 7. SOFT			
bed	114	:	grass 24
breed	6	:	good 1
cotton	14	:	ground 1
candy	2	:	hand 19
comfortable	53	:	hard 74
cloth	1	:	hair 1
clean	1	:	health 1
coat	1	:	lay 5
color	1	:	light 7
chair	6	:	mushy 3
dinner	1	:	mid 19
dress	1	:	nice 1
easy	30	:	off 1
easily	25	:	pillow 70
feel	1	:	silk 1
fur	5	:	sleep 2
food	1	:	silence 1
fine	1	:	slick 1
fair	1	:	sink 1
fluffy	1	:	velvet 1
		:	water 1

(Table 2. continued)

Stimulus: 8. EATING			
Response Words	Frequency	Response Words	Frequency
ate	9	hamburger	1
apple	24	health	1
bread	44	knife	1
cooking	11	lunch	1
chewing	1	meeting	1
candy	22	meat	17
cook	2	mouth	1
cake	19	meal	1
drinking	2	party	1
dinner	26	people	1
dining	16	plate	12
eat	33	pie	1
feeding	1	sat	1
fruit	13	sit	1
full	3	stomach	11
food	55	sweet	1
good	19	steak	1
hungry	34	teeth	1
high	1	table	89

Stimulus: 9. MOUNTAIN			
Alps	2	hill	92
air	37	high	47
bell	1	house	3
beautiful	3	live	1
brick	1	mount	3
big	13	peak	9
climbing	42	rock	81
dirt	1	sky	1
falling	1	silver	1
glacier	22	snow	51
gold	14	scenery	1
hilly	1	tall	46
		valley	26

(Table 2. continued)

Stimulus: 10. HOUSE			
Response Words	Frequency	Response Words	Frequency
bed	1	living	76
burn	47	large	1
burning	1	light	1
break	1	lumber	1
building	1	mouse	1
big	11	noise	1
bungalow	1	playing	1
clean	1	place	1
color	1	porch	1
dark	1	people	1
door	10	rooms	6
dog	1	roof	7
furniture	54	stay	3
family	1	shelter	4
father	1	school	59
fire	1	table	1
garden	1	wood	27
high	1	work	1
home	37	warm	3
live	114	women	1

Stimulus: 11. BLACK			
Response Words	Frequency	Response Words	Frequency
back	1	dog	1
blackboard	14	dress	28
bright	1	hair	5
brown	2	light	4
board	13	night	57
color	93	paints	1
cut	1	pants	1
cars	15	show	1
coal	3	shoes	29
cat	1	time	1
cover	1	tar	1
colored	16	witches	1
coat	1	white	44
dark	158	yellow	1

(Table 2. continued)

Stimulus: 12. FUN			
Response Words	Frequency	:	Response Words Frequency
baseball	11	:	play 172
games	3	:	playing 51
good	27	:	park 1
had	1	:	pranks 1
happy	62	:	playtime 1
house	4	:	pleasure 20
jolly	67	:	running 1
joy	28	:	run 4
kid	1	:	spoon 1
keen	1	:	school 6
kick	1	:	sun 1
laugh	21	:	skating 2
night	2	:	thing 1
nice	10	:	tag 1
		:	walk 1

Stimulus: 13. SCHOOL			
Response Words	Frequency	:	Response Words Frequency
arithmetic	27	:	little 1
boy	3	:	large 1
building	4	:	learner 1
books	16	:	law 1
class	3	:	place 1
children	11	:	reading 10
Dunbar	18	:	red 6
dress	1	:	read 1
education	13	:	study 136
go	1	:	studying 18
house	20	:	small 1
home	2	:	teacher 36
in	1	:	teaching 1
learn	49	:	woman 1
lessons	59	:	writing 1
light	1	:	work 54

(Table 2. continued)

Stimulus: 14. HAND			
Response Words	Frequency	:	Response Words Frequency
arm	11	:	handled 1
apple	1	:	lew 1
bone	1	:	little 1
bring	1	:	lift 1
beautiful	1	:	man 11
clean	23	:	movement 1
cerry	2	:	middle 1
cook	1	:	nice 1
dirty	7	:	pick up 1
fill	1	:	pan 1
figure	1	:	pencil 1
finger	187	:	reach 1
fight	13	:	sheke 1
fat	1	:	steal 1
foot	1	:	skin 1
feet	2	:	two 1
flesh	1	:	take 1
grab	1	:	use 67
girl	1	:	woman 1
hurt	16	:	work 51
hold	1	:	write 33
held	1	:	writing 42
hand	1	:	wetch 1

Stimulus: 15. SHORT			
Response Words	Frequency	:	Response Words Frequency
apples	1	:	line 2
book	1	:	long 28
big	1	:	legs 11
candy	1	:	level 1
cut	1	:	less 1
dress	5	:	man 26
dog	1	:	men 7
dumpy	2	:	nail 1
fat	1	:	nerrow 1
flying	1	:	pants 15
girl	1	:	small 30
house	1	:	people 17
hand	1	:	road 1
hair	22	:	shirt 3
heart	1	:	smile 1

(Stimulus: 15. SHORT continued)

Response Words	Frequency	:	Response Words	Frequency
inlight	1	:	string	1
little	106	:	stub	1
low	58	:	soft	1
		:	tall	44

Stimulus: 16. FRUIT

apple	177	:	grow	1
apples	6	:	good	24
board	1	:	health	5
bananas	62	:	juicy	1
California	1	:	orange	93
candy	1	:	orchard	1
eat	71	:	pretty	1
eating	36	:	trees	1
food	3	:	sweet	17

Stimulus: 17. BUTTERFLY

animal	16	:	flies	6
ants	2	:	flying	2
bird	4	:	fly	186
butter	1	:	flew	3
black	10	:	flower	20
bug	2	:	grasshopper	2
bat	1	:	insects	51
butter	18	:	legs	1
butterfinger	1	:	nest	1
beautiful	11	:	pretty	21
bird	1	:	summer	1
caterpillar	65	:	sky	1
creature	2	:	spring	1
color	1	:	wing	60
eagle	1	:	worms	3
yellow	3	:	worm	1

(Table 2. continued)

Stimulus: 18. SMOOTH			
Response Words	Frequency	:	Response Words Frequency
bed	1	:	hand 1
bumpy	1	:	high 1
black	1	:	honey 1
bad	1	:	ice 1
board	1	:	iron 1
cut	1	:	like 1
clear	1	:	live 1
cur	1	:	leval 107
cool	1	:	marble 1
chair	1	:	paper 52
candy	1	:	pretty 1
clean	1	:	pavement 1
divan	1	:	road 1
clear	1	:	rough 2
disk	2	:	read 1
easy	20	:	self 1
even	2	::	soft 10
flat	1	:	surface 1
face	75	:	skin 1
floor	1	:	slick 80
frost	1	:	smoothness 1
glass	2	:	straight 23
hard	83	:	sleep 1
hair	1	:	thin 1
good	1	:	table 3

Stimulus: 19. CANDY			
Response Words	Frequency	:	Response Words Frequency
aches	1	:	for 1
Baby Ruth	1	:	gum 1
buy	14	:	good 59
brook	1	:	honey 1
blow	1	:	like 3
cake	15	:	pork chops 1
chew	1	:	red 1
can	1	:	sweet 184
cheerful	1	:	sugar 38
candies	1	:	sucker 12
dessert	14	:	square 2
eat	90	:	set 1
eating	54	:	taste 1

(Table 2. continued)

Stimulus: 20. CHAIR			
Response Words	Frequency	:	Response Words Frequency
air	1	:	mother 1
bed	1	:	nice 1
brake	31	:	rocker 5
baby	3	:	red 7
broken	1	:	streight 9
band	1	:	seat 46
cook	1	:	sit 176
down	1	:	sitting 64
furniture	11	:	sat 6
hard	27	:	set 40
here	1	:	table 57
house	1	:	wood 1
legs	6	:	work 1

Stimulus: 21. SWEET			
apple	6	:	fruit 1
air	1	:	fine 1
baby	1	:	good 39
black	1	:	honey 1
bitter	4	:	juicy 1
cake	38	:	meat 1
candy	199	:	sugar 80
dear	1	:	smell 12
eating	35	:	sour 49
eat	1	:	salt 1
flower	1	:	sundae 1
food	1	:	taste 24

Stimulus: 22. WHISTLE			
blow	125	:	man 4
bird	1	:	noise 99
boy	19	:	nose 1
cap	1	:	police 5
boy	2	:	shrill 6
cell	1	:	shout 1
exercise	1	:	sing 12
fun	1	:	song 7
glad	1	:	sound 5

(Stimulus: 22. WHISTLE continued)

Response Words	Frequency	:	Response Words	Frequency
horn	1	:	teacher	1
hard	1	:	train	33
horns	1	:	tone	1
hear	1	:	tuna	1
holler	1	:	wind	1
loud	76	:	women	2
music	41	:	walking	1
mouth	3	:	wax	1
move	1	:	wish	1

Stimulus: 25. WOMAN

bat	1	:	hair	2
big	1	:	large	1
baby	10	:	lady	74
boy	1	:	live	1
body	1	:	like	1
cook	2	:	ladies	4
clothes	33	:	looks	1
children	1	:	mademesalle	1
dresses	47	:	marry	1
dress	3	:	mother	142
female	2	:	McLean	1
forest	1	:	man	53
fast	1	:	nice	1
fat	1	:	parent	1
finger	1	:	person	1
girl	3	:	pratty	2
grown	1	:	sweep	1
good	1	:	saw	1
human	82	:	silk stockings	1
handsome	1	:	straight	1
hat	10	:	working	1
head	1	:	weak	1

Stimulus: 24. GOLD

burn	5	:	ica	3
bed	1	:	lake	1
blowing	1	:	money	1
blenket	1	:	mother	1

(Stimulus: 24. GOLD continued)

Response Words	Frequency	:	Response Words	Frequency
climate	1	:	out doors	1
coal	20	:	ocean	1
coat	1	:	old	1
chilly	1	:	rebbit	1
day	1	:	rain	1
deep	1	:	shiver	1
eat	1	:	sail	1
freezing	76	:	snow	85
freeze	124	:	shovel	1
food	1	:	sea	1
fine	1	:	stove	1
frozen	1	:	thin	1
froze	1	:	wood	1
fuel	1	:	wind	12
fur	1	:	winter	11
fast	1	:	warm	33
hat	2	:	water	90
heat	1	:	weather	11

Stimulus: 25. SLOW

back	1	:	law	1
baby	1	:	movie	2
barely	1	:	motor	1
behind	1	:	mole	1
car	3	:	mice	1
cart	88	:	man	1
coming	1	:	poking	1
creepy	1	:	person	1
dragley	1	:	play	1
dry	1	:	poke	14
draggy	2	:	pokey	1
early	1	:	quick	1
eat	1	:	slow	3
fast	153	:	snail	4
faster	1	:	short	1
feet	11	:	summer	1
human	1	:	teed	1
hay	1	:	time	1
horse	1	:	tonic	1
kid	1	:	worker	1
lazy	97	:	walk	87

(Table 2. continued)

Stimulus: 26. WISH			
Response Words	Frequency	:	Response Words Frequency
asking	1	:	have 5
bicycle	2	:	here 1
book	1	:	had 62
car	1	:	hope 1
choose	1	:	light 1
candy	31	:	luck 11
children	1	:	make 1
cat	1	:	nickel 1
chicken	1	:	odd 1
clock	1	:	something 76
doll	1	:	some 1
earn	1	:	show 1
fifth	1	:	true 32
for	1	:	toy 1
fish	1	:	thinking 1
gift	13	:	ugly 13
get	9	:	want 183
good	1	:	wise 1
		:	with 1

Stimulus: 27. RIVER			
ball	1	:	large 1
bridge	42	:	ocean 1
creek	1	:	pretty 1
deep	25	:	riverside 16
drown	21	:	swim 45
fish	1	:	stream 12
fishing	6	:	swimming 52
flows	4	:	sea 1
lake	50	:	water 227
		:	washing 1

Stimulus: 28. WHITE			
black	26	:	hair 1
board	1	:	lights 128
boy	1	:	man 1
clean	26	:	milk 1
color	179	:	people 1

(Stimulus: 28. WHITE continued)

Response Words	Frequency	:	Response Words	Frequency
clear	19	:	paper	1
colored	2	:	polish	1
cotton	1	:	pure	1
chalk	5	:	pillow	1
crayolas	1	:	race	2
cat	1	:	rusty	1
dress	17	:	red	1
dark	14	:	shirt	1
day	1	:	snow	58
egg	1	:	sheets	1
football	1	:	sheet	1
hat	1	:	silver	1
		:	still	1

Stimulus: 29. BEAUTIFUL

black	1	:	lady	1
coat	1	:	lark	1
cer	1	:	lovely	12
dark	1	:	look	1
dresses	7	:	nica	1
flowers	30	:	pretty	220
girl	110	:	princess	1
good-looking	71	:	stork	1
gorgeous	2	:	sweat	1
hat	10	:	woman	65
handsome	31	:	wonderful	1
kind	1	:	quiet	1
		:	queen	1

Stimulus: 30. WINDOW

air	9	:	looking	1
a boy	2	:	let up	1
broken	1	:	light	9
break	33	:	open	5
call	1	:	raise	1
curtains	3	:	pene	116
door	28	:	sunchine	1
frame	1	:	shade	1
glass	199	:	trees	1

(Stimulus: 30. WINDOW continued)

Response Words	Frequency	:	Response Words	Frequency
glasses	1	:	up	1
house	4	:	winter	1
home	1	:	walk	1
look	76	:	wind	1

Stimulus: 31. ROUGH

alligator	1	:	legs	1
bumpy	33	:	men	3
bed	77	:	mean	1
bumping	7	:	play	16
bumps	1	:	road	76
boy	1	:	raise	1
big	1	:	rain	1
boys	13	:	ragged	1
bug	1	:	smooth	15
breath	1	:	softy	1
covering	1	:	soft	1
fight	1	:	strong	1
forks	1	:	tough	78
ground	49	:	tree	1
gruff	1	:	tender	1
hard	92	:	take	1
hills	1	:	unsmooth	2
harsh	2	:	unlevel	2
hurt	1	:	uneasy	1
house	8	:	us	1
jerky	1	:	wood	1

Stimulus: 32. STORK

animal	1	:	fox	1
big	1	:	going	1
bird	245	:	go	1
baby	97	:	Holland	1
bebies	16	:	house	1
bill	1	:	high	1
corn	2	:	legs	12
cane	1	:	nest	1
chimney	10	:	rack	1
cloth	1	:	stop	9

(Stimulus: 32. STORK continued)

Response Words	Frequency	:	Response Words	Frequency
children	1	:	skies	1
fly	76	:	steepler	1
feet	13	:	tall	2
fast	1	:	white	1

Stimulus: 33. FOOT

blood	1	:	people	1
bad	1	:	rug	1
bird	1	:	shoes	64
corn	1	:	sore	25
feet	161	:	skin	1
flesh	9	:	step	1
hurt	1	:	stocking	12
hand	1	:	sound	1
large	11	:	toes	78
little	1	:	web	1
leg	2	:	work	1
length	1	:	walking	40
meat	1	:	walk	189

Stimulus: 34. SPIDER

ant	1	:	fierce	1
animal	5	:	holler	1
bite	173	:	insect	48
biting	1	:	legs	12
bug	47	:	long	1
black	1	:	look	1
blood	1	:	nest	1
blazes	1	:	poison	13
bad	1	:	swell	1
bad	1	:	sting	1
crawl	2	:	ugly	1
creature	10	:	web	119
dangerous	42	:	weave	1
fight	1	:	worm	1
		:	walk	1

(Table 2. continued)

Stimulus: 35. NEEDLE			
Response Words	Frequency	Response Words	Frequency
clothes	1	sew	208
eye	5	sewing	123
go	1	short	1
nine	1	stick	36
pin	33	sharp	7
		thread	84

Stimulus: 36. RED			
apple	2	flame	1
baby	1	fire	1
blood	4	hat	66
black	22	hair	1
book	1	handkerchief	1
bright	1	man	1
brave	1	monkey	3
blue	17	orange	1
brown	1	paint	1
color	227	pretty	3
coat	4	paper	2
crimson	1	rices	1
car	1	ribbon	1
dress	117	rug	1
dark	1	sacks	1
flag	11	thread	1
		rose	1

Stimulus: 37. SLEEP			
awake	33	lazy	2
bed	199	night	30
babies	1	nice	1
baby	1	nap	1
child	1	preserve	1
dark	1	quiet	1
dream	3	resting	58
dead	1	rest	140
eyes	2	sound	4
eat	1	sleeping	1
floor	1	snoring	1
friend	1	slept	1
growth	1	snore	1

(Stimulus: 37. SLEEP continued)

Response Words	Frequency	:	Response Words	Frequency
health	1	:	still	1
ice	1	:	sweet	1
lay	6	:	tight	1
		:	tired	1

Stimulus: 38. ANGER

angry	22	:	glad	1
age	1	:	hate	1
bad	48	:	jolly	1
boy	1	:	knees	1
boxers	1	:	mad	268
cold	1	:	mean	32
cross	1	:	rage	1
dog	1	:	rude	1
fright	1	:	sad	1
fight	113	:	silly	1
		:	unhappy	1

Stimulus: 39. CARPET

broom	1	:	make	1
bed	1	:	money	1
car	20	:	man	1
color	34	:	nsil	11
cloth	1	:	penny	1
carring	1	:	rug	215
down	1	:	roof	1
electric	1	:	run	1
floor	107	:	sweep	55
flower	1	:	seat	1
fish	1	:	took	1
fix	1	:	tacks	1
flying	1	:	tent	1
haul	1	:	walk	22
hard	1	:	wood	1
home	7	:	wires	1
household	1	:	work	1
incent	1	:	worm	1

(Table 2. continued)

Stimulus: 40. GIRL			
Response Words	Frequency	:	Response Words Frequency
baby	5	:	mama 1
bear	1	:	male 1
bad	1	:	milk 1
boy	156	:	myself 1
child	88	:	maid 1
curls	1	:	nice 24
cute	1	:	person 5
dress	33	:	people 1
doll	17	:	play 1
daughter	1	:	pretty 44
friend	1	:	sisters 1
female	33	:	she 1
gal	1	:	someone 1
good	12	:	straight 1
human	2	:	ster 1
handkerchief	4	:	smart 1
hair	2	:	sweet 1
like	1	:	shoe 1
ladies	3	:	woman 48
lonely	1	:	work 1

Stimulus: 41. HIGH			
airplane	1	:	mountains 132
air	8	:	priced 1
Alps	9	:	quake 1
above	1	:	rats 1
breeze	1	:	reach 1
building	1	:	set-up 1
bird	2	:	swing 1
bells	1	:	stars 1
bees	1	:	school 56
climb	1	:	sky 53
fly	1	:	scared 1
far	1	:	skin 1
fall	1	:	tall 84
hill	29	:	tree 1
higher	3	:	up 24
in the air	1	:	world 1
jump	4	:	water 1
low	70	:	wind 2

(Table 2. continued)

Stimulus: 42. WORKING			
Response Words	Frequency	:	Response Words Frequency
bad	1	:	men 18
busy	4	:	money 52
boy	1	:	mother 1
clay	1	:	machine 2
dishes	13	:	N. R. A. 1
digging	2	:	occupation 1
farmers	1	:	playing 7
flowers	1	:	paying 1
garage	1	:	pick 1
garden	1	:	plowing 1
grief	1	:	people 1
ground	83	:	planting 1
hammer	1	:	show 1
hard	165	:	steal 1
hill	1	:	small 1
heart	1	:	scrub 1
job	1	:	tired 1
earn	1	:	teacher 1
living	1	:	tool 1
labor	12	:	task 1
man	72	:	work 38
		:	yard 1

Stimulus: 43. SOUR			
apples	1	:	pickle 183
bad	8	:	smell 1
bitter	37	:	spoilt 1
belly	1	:	sweet 43
food	4	:	plums 4
good	1	:	stink 1
like	1	:	stele 1
lemon	54	:	sad 1
milk	97	:	stings 1
men	1	:	spoiled 1
no good	6	:	soured 1
onions	3	:	stingy 1
nasty	1	:	unsweet 13
		:	vinegar 33

(Table 2. continued)

Stimulus: 44. EARTH				
bad	1	:	heaven	1
ball	1	:	high	1
cities	1	:	happy	1
cold	1	:	light	1
dirt	34	:	live	1
down	1	:	land	32
dark	106	:	man	1
equator	1	:	people	27
flower	1	:	plants	1
fruit	1	:	quiet	1
ground	160	:	round	38
grow	1	:	rivers	1
grown	1	:	soft	1
garden	1	:	sky	3
hard	122	:	still	1
house	1	:	tree	1
		:	world	34

Stimulus: 45. GARDEN				
beans	19	:	ground	1
candy	1	:	hose	1
dirt	1	:	hoe	1
eating	12	:	plants	136
food	8	:	potatoes	46
flowers	57	:	planting	1
farm	84	:	rock	1
farmers	1	:	seeds	2
fruit	1	:	tomatoes	1
field	1	:	vegetables	162
gate	5	:	wheat	6
greens	1	:	working	1
grows	41	:	watch	1

Stimulus: 46. SOLDIER				
army	32	:	march	68
arm	1	:	officer	1
brave	19	:	onward	1
camp	1	:	people	1
fighting	63	:	son	1
flying	1	:	scout	1
France	1	:	stiff	1

(Stimulus: 46. SOLDIER continued)

Response Words	Frequency	:	Response Words	Frequency
gun	8	:	shoot	1
head	1	:	straight	1
human	1	:	shooting	1
hero	1	:	veteran	1
men	77	:	war	216

Stimulus: 47. CABBAGE

age	1	:	ground	1
cornbread	1	:	head	1
cook	1	:	halt	1
carrot	1	:	hunting	1
dinner	1	:	kettle	1
eat	86	:	lettuce	322
eating	155	:	leaves	1
fat	2	:	meat	1
food	5	:	plant	4
garden	5	:	rabbit	1
green	1	:	greens	34
good	1	:	rock	1
grow	1	:	spinach	19
vegetables	39	:	worms	5

Stimulus: 48. HARD

brick	28	:	rock	181
bread	2	:	rough	2
ball	1	:	stone	8
break	2	:	soft	154
book	1	:	sidewalk	1
coal	1	:	study	1
candy	15	:	strong	1
cake	1	:	seat	1
chain	1	:	softy	2
disk	1	:	stick	1
eight	1	:	sod	1
fall	1	:	tough	1
food	1	:	tree	1
froze	1	:	unsoft	1
ground	9	:	uncomfortable	1

(Stimulus: 48. HARD continued)

Response Words	Frequency	:	Response Words	Frequency
heavy	12	:	work	11
huge	1	:	write	1
paper	1	:	wood	8
		:	worked	1

Stimulus: 49. EAGLE

animal	29	:	flying	6
airplane	1	:	feather	81
ate	1	:	large	1
bird	149	:	mean	2
big	8	:	mountain	1
bride	1	:	nest	1
brown	1	:	object	1
beasty	1	:	paper	43
carries	1	:	run	1
crow	1	:	sleep	1
equal	1	:	sparrow	1
fly	163	:	time	1
		:	wings	1

Stimulus: 50. STOMACH

abdomen	2	:	fell	1
ache	26	:	fill	1
big	1	:	fall	1
belly	6	:	guts	1
body	97	:	hurt	34
bad	1	:	heat	1
candy	1	:	hungry	1
corn	1	:	heart	2
digest	1	:	intestine	16
eat	170	:	nevel	1
empty	20	:	people	1
eating	60	:	pain	1
food	30	:	starch	1
full	18	:	summer	1
front	1	:	soft	1

(Table 2. continued)

Stimulus: 51. STEM			
Response Words	Frequency	:	Response Words Frequency
apple	88	:	long 2
air	1	:	life 1
branch	1	:	little 1
berry	1	:	match 27
branch ^{es}	1	:	nobs 1
breed	1	:	pair 1
cotton	28	:	pipe 1
cabbage	1	:	plent 1
dead	1	:	rose 1
fruit	5	:	root 1
flower	196	:	switch 1
green	5	:	strong 1
grow	1	:	stick 9
hat	1	:	tree 4
leaf	53	:	tomatoes 28
leaves	86	:	talk 1
		:	tall 1

Stimulus: 52. LAMP			
air	1	:	light 308
burn	19	:	match 1
color	1	:	oil 41
cool oil	1	:	see 84
fire	32	:	water 1
		:	white 1

Stimulus: 53. DREAM			
Aladdin	1	:	night 90
bed	6	:	nature 1
bad	3	:	pillow 1
beautiful	11	:	poses 1
brick	1	:	picture 26
color	1	:	person 1
clear	1	:	pretty 1
demand	1	:	sleep 279
dream	1	:	story 19
east	1	:	see 2
feiry	1	:	stories 1

(Stimulus: 53. DREAM continued)

Response Words	Frequency	:	Response Words	Frequency
good	4	:	something	1
girl	1	:	true	51
happiness	1	:	trouble	1
imagination	1	:	thing	1
light	1	:	think	1
		:	tree	1

Stimulus: 54. YELLOW

black	1	:	grass	1
banana	28	:	green	1
blue	2	:	houses	1
book	7	:	house	1
bright	2	:	lemon	113
ball	1	:	light	1
color	197	:	moon	11
Chinese	1	:	orange	40
car	1	:	pencil	1
cloth	1	:	pillow	1
corn	1	:	purple	1
dress	67	:	sweater	1
egg	7	:	sun	1
Eskimo	1	:	tulip	1
flower	2	:	top	1
fruit	1	:	white	1
golden	1	:	wheat	1

Stimulus: 55. BREAD

bond	1	:	health	1
brown	1	:	holiday	1
butter	1	:	jelly	1
crust	1	:	meat	1
corn	40	:	paper	46
eat	195	:	sandwich	1
eating	5	:	milk	2
food	30	:	soft	1
flour	112	:	soup	1
growth	1	:	starch	1
good	72	:	trade	1

(Table 2. continued)

Stimulus: 56. FLAG			
Response Words	Frequency	:	Response Words Frequency
American	244	:	nation 2
air	1	:	person 1
blue	1	:	pole 3
country	44	:	red 36
Christopher	1	:	raise 1
cloth	2	:	rag 1
color	22	:	rage 1
freedom	1	:	stars and stripes 56
flying	1	:	school 1
fun	1	:	salute 12
flower	1	:	stripe 2
hang	1	:	thirteen 1
honor	1	:	United States 5
holiday	1	:	war 14
justice	1	:	white 1

Stimulus: 57. BOY			
body	1	:	hero 1
bad	31	:	hunting 1
baby	5	:	Jesus 1
big	1	:	kid 1
box	1	:	male 88
basketball	105	:	men 25
burned	1	:	mischievous 1
looks	1	:	marbles 1
child	7	:	nut 1
clothes	1	:	pants 5
cook	1	:	playmate 10
candy	1	:	person 6
cute	1	:	play 2
electric	1	:	rough 1
eggs	1	:	runt 1
female	1	:	run 2
good	1	:	scout 1
girl	144	:	strong 1
games	1	:	suit 1
going	2	:	shirt 1
human	24	:	short 1
handsome	3	:	weak 1
		:	white 1

(Table 2. continued)

Stimulus: 58. LIGHT			
Response Words	Frequency	Response Words	Frequency
air	1	morning	1
bright	61	match	1
bulb	6	room	1
burn	1	reading	1
cotton	1	read	1
dark	95	sight	1
day	17	seeing	10
drink	5	soft	1
dim	1	silly	1
electricity	22	sky	1
electric	43	shows	1
fruit	1	sun	1
good	1	see	1
him	1	use	1
house	1	up	2
lamp	195	whip	1
lofty	1	white	18
living	1		

Stimulus: 59. LAUGH			
animals	1	happy	109
angry	1	hard	6
boy	1	holler	1
cake	1	joke	1
children	1	jolly	11
clothes	1	joy	1
cheer	1	last	1
electricity	1	loud	4
fun	12	laughing	47
funny	177	long	1
good	1	map	1
gladness	1	monkey	1
girl	1	noises	1
grin	18	side	1
giggle	1	smile	79
him	1	smiling	2
house	1	tickle	11
		write	1

(Table 2. continued)

Stimulus: 60. BIBLE			
Response Words	Frequency	:	Response Words Frequency
book	30	:	Lord 7
church	36	:	preacher 1
Christ	3	:	preach 1
clean	1	:	read 115
Christian	2	:	reality 1
God	195	:	stories 1
good	1	:	scripture 2
holy	81	:	truth 1
honor	1	:	true 1
Jesus	9	:	wash 1
lesson	1	:	words 1
		:	worship 10

Stimulus: 61. MILK			
bread	1	:	goat 1
baby	30	:	healthful 12
babies	3	:	horses 1
cow	115	:	health 5
drink	279	:	man 1
drinking	10	:	minerals 1
energy	1	:	maid 1
fast	1	:	rest 1
fat	1	:	water 1
food	1	:	vitamins 1
good	1	:	water 2
go		:	white 20

Stimulus: 62. SHEEP			
animals	97	:	fur 53
boy	1	:	goat 2
bed	1	:	herd 1
bleat	1	:	hungry 1
coat	2	:	horse 1
cattle	14	:	lamb 7
clothes	1	:	meat 1
cover	1	:	paper 1
flock	1	:	road 1
		:	wool 312

(Table 2. continued)

Stimulus: 63. BATH			
Response Words	Frequency	Response Words	Frequency
body	1	need	1
clean	156	soap	1
clothes	1	smell	1
dirty	13	sponge	4
eat	1	stink	1
fire	1	taking	1
good	23	tub	46
house	1	wash	60
hair	1	water	166
		understood	1

Stimulus: 64. COTTAGE			
cheap	1	little	2
cheese	10	logs	1
cabin	1	man	1
fast	1	pattern	1
gun	1	rich	1
house	200	school	25
hut	16	steps	1
home	127	short	1
living	1	supper	1
live	6	village	91

Stimulus: 65. SWIFT			
away	1	kick	1
arrow	13	motor	1
ball	17	ocean	1
balls	1	quick	80
boy	10	running	50
card	1	run	15
church	1	strong	1
deer	1	slow	2
fast	283	seal	1
fighting	2	trick	1
food	1	train	1
going	1	throw	1
hit	1	water	10
horses	1	wind	1

(Table 2. continued)

Stimulus: 66. BLUE			
Response Words	Frequency	Response Words	Frequency
book	1	lonely	1
cap	1	moon	10
color	226	pants	3
dress	10	paper	1
dark	10	rid	1
dresses	5	suit	28
flew	1	sky	130
flowers	53	shirt	1
flag	1	true	1
fast	1	tall	1
head	1	water	8
horn	2	white	1
hat	1	wind	1

Stimulus: 67. HUNGRY			
ache	1	good	1
buy	1	men	1
drink	1	pig	1
dinner	1	ready	1
eating	128	starving	8
eater	1	starved	91
eat	186	table	20
empty	6	tired	1
food	45	weak	1
full	1	wanting	1
girl	1	pill	1

Stimulus: 68. PRIEST			
amen	1	king	186
African	1	live	1
Bible	10	leader	5
baby	1	minister	121
Catholic	35	man	1
church	185	people	1
drink	1	pants	1
deacon	1	preaching	5
dress	1	pens	1
father	10	press	1

(Stimulus: 68. PRIEST continued)

Response Words	Frequency	:	Response Words	Frequency
good	1	:	prince	1
God	1	:	ruler	1
governor	1	:	sea	1
hat	1	:	stand	1
high	2	:	you	1

Stimulus: 69. OCEAN

Atlantic	42	:	pal	1
body	2	:	Pacific	32
big	1	:	river	37
boats	1	:	ships	48
deep	2	:	sea	63
fish	4	:	white	1
hot	2	:	weather	1
wide	27	:	water	233
		:	lake	3

Stimulus: 70. HEAD

ache	1	:	hurt	1
ball	1	:	hat	1
bed	1	:	hear	1
brain	96	:	hit	1
big	2	:	itch	1
body	91	:	long	31
drank	1	:	neck	1
dead	5	:	scare	1
eye	1	:	scalp	1
ears	1	:	swell	24
hair	180	:	sense	49
face	3	:	talk	1
hands	1	:	think	1
		:	warm	1

Stimulus: 71. STOVE

burn	1	:	hot	43
big	1	:	heat	50
cooking	87	:	heating	1
coal	12	:	little	1

(Stimulus: 71. STOVE continued)

Response Words	Frequency	:	Response Words	Frequency
cook	55	:	nasty	1
food	1	:	round	5
fire	237	:	short	1
gas	1	:	store	1
		:	warm	2

Stimulus: 72. LONG

big	1	:	playing	1
bed	1	:	pencil	1
boys	1	:	rope	3
dress	38	:	snake	1
distance	1	:	state	1
day	1	:	school	1
dead	1	:	stem	24
foot	1	:	string	1
far	1	:	scared	1
hair	40	:	short	136
head	1	:	straight	1
knee	1	:	sort	1
lanky	2	:	tall	180
land	1	:	time	1
leg	1	:	tongue	1
large	47	:	wide	1
miles	1	:	wood	1
narrow	1	:	wire	1
		:	years	1

Stimulus: 73. GHOST

afraid	15	:	house	1
bad	1	:	haunt	5
black	5	:	man	1
bones	1	:	person	1
bad man	1	:	run	2
dead people	1	:	seat	1
dog	1	:	seem	1
drunk	1	:	story	1
frightened	30	:	speak	8
foot	1	:	spook	97
give	1	:	scared	159

(Stimulus: 73. GHOST continued)

Response Words	Frequency	:	Response Words	Frequency
go	1	:	sheet	1
God	1	:	spirit	123
graveyard	1	:	tall	1
		:	white	27

Stimulus: 74. WHISKY

alcohol	63	:	drink	177
bells	1	:	drinking	67
blatz	1	:	fire	1
beer	5	:	liquor	18
bed	2	:	man	1
cow	1	:	sound	1
cargo	1	:	sick	1
drank	47	:	strong	1
drunk	85	:	wine	26

Stimulus: 75. CHILD

baby	165	:	little	50
boy	73	:	Mary	1
children	82	:	mother	1
cute	1	:	one	1
enemy	1	:	pal	1
girl	62	:	person	1
growing	1	:	sister	1
go	1	:	sick	1
human	23	:	small	1
kid	22	:	toys	1
lady	1	:	water	1
		:	young	1

Stimulus: 76. FRIEND

best	1	:	live	1
block	1	:	mate	7
buddy	6	:	my	1
boy	12	:	neighbor	66
enemy	2	:	parents	1
enemies	21	:	partner	1

(Stimulus: 76. FRIEND continued)

Response Words	Frequency	:	Response Words	Frequency
good	176	:	playmate	99
girl	30	:	pal	60
Helen	1	:	piece	1
hear	1	:	somebody	1
kind	1	:	taking	1
like	5	:	thank	1
love	2	:	warm	1

Stimulus: 77. HAMMER

ache	1	:	hang	1
beat	26	:	hit	112
break	1	:	iron	22
bang	1	:	large	1
box	1	:	nailling	68
drove	1	:	neil	221
finger	1	:	pound	1
good	1	:	steel	1
hatchet	8	:	tools	25
house	1	:	use	1
		:	wood	5

Stimulus: 78. THIRSTY

animals	17	:	dry	57
bread	1	:	man	1
drank	1	:	milk	2
drink	180	:	mouth	3
drinking	1	:	sick	1
		:	water	237

Stimulus: 79. CITY

beal	1	:	live	2
building	18	:	New York	24
capital	1	:	Oklahoma	40
country	1	:	place	2
chair	3	:	people	25
counted	1	:	state	138
drum	1	:	stork	1

(Stimulus: 79. CITY continued)

Response Words	Frequency	:	Response Words	Frequency
going	1	:	stair	1
gal	1	:	show	1
heap	1	:	seat	1
housees	1	:	scenery	1
happy	1	:	tax	1
Kansas	15	:	town	95
land	1	:	travel	1
large	1	:	Wichita	116

Stimulus: 80. SQUARE

board	1	:	material	1
block	206	:	miles	52
box	136	:	money	1
butter	1	:	noise	1
corners	1	:	odd	1
chocolate	1	:	paper	1
dollar	1	:	round	71
even	1	:	shape	23
fat	1	:	sleep	1
foot	1	:	stick	1
flat	1	:	short	1
fold	1	:	steel	1
look	1	:	table	1
long	5	:	triangle	1

Stimulus: 81. BUTTER

bread	164	:	grease	4
big	1	:	good	1
cheese	1	:	help	1
churn	1	:	lard	1
cow	73	:	milk	56
cut	1	:	soft	3
dark	1	:	salt	1
eat	189	:	spreed	1
esting	1	:	stealing	1
fat	54	:	sick	1
		:	yellow	35

(Table 2. continued)

Stimulus: 82. DOCTOR				
apple	1	:	hurt	1
accident	1	:	ill	52
angry	1	:	medicine	120
baby	1	:	man	37
cure	1	:	nurse	49
dentist	1	:	nose	1
first aid	1	:	onion	1
heal	1	:	sick	221
healer	1	:	sickness	4
hospital	1	:	set	1
help	1	:	soup	1
happy	1	:	train	1

Stimulus: 83. LOUD				
boy	1	:	quiet	1
bad	1	:	silent	1
cry	5	:	shrill	42
fire wagon	1	:	sound	11
guard	1	:	soft	6
hear	1	:	screen	28
holler	67	:	sort	1
harm	25	:	speaking	1
happy	1	:	singing	1
laughing	1	:	talking	1
mouth	3	:	talk	163
noise	194	:	voice	5
noisy	1	:	word	1

Stimulus: 84. THIEF				
aim	1	:	night	1
animal	1	:	robber	1
Dillinger	1	:	steal	146
fat	1	:	sleep	1
hand	1	:	stealing	130
man	1	:	stolen	1
		:	take	112

(Table 2. continued)

Stimulus: 85. LION			
Response Words	Frequency	:	Response Words Frequency
animals	191	:	growl 1
beast	137	:	groan 1
bad	6	:	jungle 15
big	1	:	king 5
bite	18	:	lick 1
cattle	1	:	master 1
claws	1	:	noise 1
circus	63	:	pork 1
cub	1	:	roar 1
danger	1	:	roaring 1
den	1	:	rest 1
dangerous	16	:	running 1
died	1	:	sheep 1
est	1	:	tall 1
forest	1	:	tiger 1
fierce	2	:	vicious 1
		:	Washington 1

Stimulus: 86. JOY			
chew	1	:	like 6
cheer	1	:	music 1
enjoying	1	:	playful 1
fun	64	:	play 19
funny	27	:	playing 102
friendship	1	:	pleasure 1
good	22	:	peace 1
gold	1	:	sad 1
glad	62	:	show 1
happiness	18	:	sorrow 1
happy	292	:	still 1
		:	sweet 1

Stimulus: 87. BED			
big	1	:	sleep 232
bat	1	:	sleeping 120
cover	25	:	snore 1
crying	1	:	sweet 1
hard	63	:	sleepy 1

(Stimulus: 87. BED continued)

Response Words	Frequency	:	Response Words	Frequency
night	1	:	soft	20
		:	toy	1

Stimulus: 88. HEAVY

brick	1	:	lift	5
big	15	:	large	15
bat	1	:	man	1
bed	1	:	move	1
carry	10	:	mountain	1
coat	1	:	pounds	1
carrying	1	:	road	15
drop	1	:	rock	32
gold	1	:	raise	1
hand	30	:	stone	2
iron	38	:	truck	2
lead	60	:	tight	2
load	116	:	trunk	1
log	1	:	weight	144

Stimulus: 89. TOBACCO

cigarettes	70	:	juice	1
chews	3	:	pipe	30
cigar	25	:	plant	1
child	1	:	raise	1
cut	1	:	rules	1
eat	63	:	smoke	225
grow	1	:	smooth	1
grain	1	:	smoking	73
		:	weed	1

Stimulus: 90. BABY

born	3	:	infant	1
boy	80	:	innocent	1
bottle	30	:	little	32
child	162	:	married	1
cry	1	:	mouse	1
cat	1	:	Christ	1
cute	1	:	moon	1

(Stimulus: 90. BABY continued)

Response Words	Frequency	:	Response Words	Frequency
cradle	1	:	person	1
fishing	1	:	stork	89
girl	63	:	small	12
garden	1	:	sister	1
silence	1	:	women	1

Stimulus: 91. MOON

blue	1	:	moonlight	1
bright	97	:	night	25
bell	1	:	round	5
clouds	1	:	romance	1
cheese	1	:	shine	118
cabbage	1	:	stars	1
dark	27	:	sun	15
light	178	:	sky	15
lady	1	:	white	1
		:	yellow	1

Stimulus: 92. SCISSORS

cut	284	:	color	1
cutting	162	:	knife	1
cutters	37	:	knives	13
		:	used	1

Stimulus: 93. QUIET

alone	1	:	nice	3
boy	2	:	noise	25
behave	1	:	peace	51
children	1	:	quaker	1
forest	11	:	room	58
good	1	:	still	183
give	1	:	silence	80
hospital	1	:	soft	1
hair	1	:	sleep	13
lay	1	:	sound	23
lowly	1	:	soundless	1
leaves	1	:	stage	1

(Stimulus: 93. QUIET continued)

Response Words	Frequency	:	Response Words	Frequency
loud	25	:	slow	1
lonesome	1	:	talking	3
mouse	1	:	talk	1
noisily	1	:	up	1
nurse	1	:	work	1
		:	walk	1

Stimulus: 94. GREEN

bean	1	:	garden	5
blue	1	:	live	1
black	1	:	leaves	37
color	111	:	mustard	59
curtain	1	:	paint	1
dress	55	:	stew	1
dark	1	:	tree	1
eat	2	:	thing	1
grass	223	:	worm	1

Stimulus: 95. SALT

apple	2	:	mined	1
bread	2	:	medicine	1
cooking	51	:	peanuts	1
dry	1	:	piece	1
eating	4	:	pepper	4
eat	72	:	queen	1
food	159	:	salty	1
fish	1	:	season	2
flowing	1	:	sea	1
fine	1	:	sugar	16
grain	1	:	sour	1
ham	1	:	sick	1
ice cream	1	:	soup	1
salt	1	:	sweet	1
jello	1	:	seasoning	87
lard	1	:	table	5
lump	1	:	taste	5
mining	1	:	use	1
meat	121	:	water	2
		:	white	5

(Table 2. continued)

Stimulus: 96. STREET			
Response Words	Frequency	:	Response Words Frequency
Broadway	1	:	stand 1
ceers	204	:	narrow 13
cement	10	:	sidewalk 78
cross	81	:	place 1
Cleveland	1	:	walk 1
drive	1	:	house 1
hurt	1	:	pavement 6
Nulen	1	:	walking 1
Ohio	1	:	way 1
wide	21	:	Wabash 1
walks	1	:	flower 1
		:	milk 1

Stimulus: 97. KING			
big	1	:	money 44
boss	1	:	prince 1
country	1	:	princess 1
crown	1	:	palace 49
chief	1	:	queen 99
excited	1	:	rich 2
frems	1	:	ruler 211
government	3	:	soap 1
happy	1	:	throne 65
man	4	:	walk 11
master	1	:	woman 1

Stimulus: 98. CHEESE			
boy	1	:	good 1
cows	5	:	girl 1
crackers	2	:	hog 1
chicken	1	:	Holland 1
cottage	15	:	hungry 1
churn	1	:	meat 1
chew	1	:	mouse 28
Dutch	1	:	milk 64
eat	201	:	mice 4
eating	1	:	play 1
feed	11	:	rat 88
		:	yellow 68

(Table 2. concluded)

Stimulus: 99. BLOSSOM			
Response Words	Frequency	:	Response Words Frequency
blossom	1	:	hawthorne 1
black	19	:	ink 1
bloom	64	:	June 8
blood	1	:	mean 1
flowers	283	:	spring 1
honey	1	:	tree 119

Stimulus: 100. AFRAID			
be	1	:	lain 1
brave	2	:	night 22
cry	1	:	running 1
dog	1	:	run 1
drake	1	:	robber 1
fear	1	:	old house 1
frightened	129	:	stay 1
go	1	:	scarey 1
hair	1	:	scared 276
hear	20	:	thing 1
hurt	9	:	water 1
		:	whipping 24

Association Types

Everyone who does practical work in association finds the classification of associations according to form or type the hardest and most tedious part. The writer does not wish to minimize the uncertainty of any classification of associations, particularly when unaided by introspection. As to the aid to be obtained from introspection, it may be questioned if children's introspection would be reliable for use in the classification of associations according to their types. Notwithstanding the difficulties, the writer believes that the careful classifications of associations that have been made for both white and colored children are of great value. In spite of the possible errors, the comparison of these classifications brings out in an unquestionable manner a number of striking and important differences in the mental processes of white and colored children.

It did not seem worthwhile to make frequency tables for all association types. Several of Woodrow and Lowell's classifications had little value for comparison.

In selecting the classifications, the writer has endeavored to get headings which would serve to show the chief similarities and dissimilarities between the associations of white and colored children. The following types

were selected from Woodrow and Lowell's study: (1) contrast, (2) similarity, (3) contiguity, (4) adjective-noun, (5) noun-adjective, (6) part-whole, (7) whole-part, (8) verb, (9) cause-effect, (10) verb-object. The meanings of most of these types is sufficiently clear, particularly since they are fully illustrated in table 3.

Table 3. Classification of associations: a comparison of white adults, white children, and colored children

		I. Contrast		
Stimulus Word	Response Word	White Adults	White Children	*Colored Children
2. dark	light	427	38	275
4. sickness	health	142	6	1
5. men	woman (en)	394	25	29
	lady	0	0	1
6. deep	shallow	180	6	0
7. soft	hard	365	27	63
9. mountain	valley	90	3	26
11. black	white	339	27	43
15. short	long	279	54	24
18. smooth	rough	168	35	1
21. sweet	bitter	277	0	1
	sour	50	23	46
23. woman	man	301	17	50
24. cold	hot	292	12	0
	warm	151	25	31
25. slow	fast	166	65	138
28. white	black	316	28	23
29. beautiful	ugly	56	0	0
31. rough	smooth	308	35	14
37. sleep	awake	66	14	28
40. girl	boy	346	40	152
41. high	low	94	25	63
43. sour	sweet	60	75	37
48. hard	soft	350	65	37
57. boy	girl	328	32	140
58. light-	dark	349	99	86
65. swift	slow	367	28	1
72. long	short	319	45	126

*There were 500 colored children, but 1,000 white children, and 1,000 white adults.

(I. Contrast continued)

Stimulus Word	Response Word	White Adults	White Children	Colored Children
80. square	round	231	35	66
83. loud	low	93	8	0
	soft	190	13	6
88. heavy	light	250	54	0
93. quiet	noise	57	70	20
97. king	queen	165	50	89

II. Contiguity

1. table	dish (es)	145	159	25
2. dark	night	221	421	0
4. sickness	bed	54	105	111
	doctor	62	116	23
5. man	hat	7	82	1
8. eating	table	21	108	88
9. mountain	snow	10	61	51
14. sand	arm	63	44	11
30. window	light	186	47	9
33. foot	leg (s)	55	115	2
35. needle	thread	163	72	83
37. sleep	bed (s)	160	382	197
	night	75	95	30
38. anger	boy (s)	49	53	1
39. carpet	floor	3	149	101
40. girl	dress	256	240	31
46. soldier	gun	8	61	7
50. stomach	food	27	83	30
51. stem	pipe	101	42	1
53. dream	bed	70	78	6
	night	11	260	90
55. bread	butter	42	8	1
57. boy	ball	151	55	0
	pants	10	63	4
	cap	1	53	0

(II. Contiguity continued)

Stimulus Word	Response Word	White Adults	White Children	Colored Children
58. light	day	6	67	17
64. cottage	lake	5	117	0
68. priest	church	166	271	185
69. ocean	boat (s)	7	54	1
	ship (s)	35	79	47
74. whiskey	saloon	15	57	0
81. butter	bread	206	467	163
82. doctor	medicine	149	136	118
	sick	52	448	212
	sickness	104	34	1
84. thief	money	16	63	0
87. bed	night	11	106	1
89. tobacco	pipe	69	70	30
90. baby	milk	1	55	0
91. moon	night	66	128	178
	sky	73	103	15
	stars	93	10	1
96. street	house	2	96	0
97. king	crown	13	124	1
	country	53	83	1
98. cheese	nice	25	59	1
	mouse	13	128	28
	rat (s)	15	89	85

III. Similarity

2. dark	black	80	80	87
4. sickness	ill (ness)	100	100	42
9. mountain	hill (s)	97	97	87
11. black	dark	315	315	153
15. short	little	157	157	101
18. smooth	even	136	70	1
	level	30	55	105
20. chair	seat	52	131	45
23. women	lady	127	243	73
26. wish	desire	41	4	0
28. white	clean	197	97	24

(III. Similarity continued)

Stimulus Words	Response Words	White Adults	White Children	Colored Children
29. beautiful	handsome	10	13	31
	lovely	86	8	1
	pretty	64	280	220
31. rough	bumpy	113	61	33
38. anger	cross	1	56	1
	passion	44	0	0
	wrath	51	0	0
	temper	149	8	0
39. carpet	rug (a)	52	247	205
41. high	tall	177	56	84
42. working	busy	57	49	4
	labor	51	18	12
44. earth	dirt	147	102	31
	ground	115	223	178
58. light	bright	166	74	61
62. sheep	mutton	47	9	0
64. cottage	house	60	425	190
65. swift	fast	461	391	275
	quick	222	10	80
68. priest	clergyman	117	0	0
	minister	62	168	121
	preacher	178	57	0
72. long	far	35	90	1
78. thirsty	dry	8	132	57
81. butter	grease	218	5	4
82. doctor	physician	76	8	0
83. loud	noisy	213	11	1
84. thief	burglar	112	64	0
	robber	118	229	1
86. joy	fun	126	182	64
	glad	2	203	82
	happiness	27	25	18
	happy	217	260	292
	pleasure	71	6	1
90. baby	infant	121	20	1
93. quiet	still	168	300	182
97. king	ruler	136	170	211

(III. Similarity continued)

Stimulus Words	Response Words	White Adults	White Children	Colored Children
99. blossom	flower (s)	162	579	280
100. afraid	nervous	540	1	0
	scared	55	290	271
	timid	100	7	0

IV. Adjective-noun

6. deep	hole	32	257	126
	ocean	93	15	17
	sea	90	14	26
	water	134	145	76
	well	44	87	27
7. soft	bed	12	57	113
	bread	4	45	6
	cotton	28	57	11
	cushion	25	39	0
	pillow	53	138	70
11. black	dress	29	63	0
	night	51	15	57
18. smooth	glass	56	48	1
21. sweet	apple (e)	14	66	5
	candy	82	146	197
	sugar	224	178	78
24. cold	ice	114	84	2
	snow	45	62	82
	winter	120	103	11
25. slow	snail	62	2	1
28. white	cloth	17	61	0
	dress	34	149	17
	light	51	125	128
	paper	17	54	1
	snow	91	65	58
29. beautiful	flower (s)	55	43	0
31. rough	boy (s)	8	126	1
36. red	apple (s)	16	56	2
	blood	71	14	2
	cloth	8	65	0
	dress	18	85	117

(IV. Adjective-noun continued)

Stimulus Words	Response Words	White Adults	White Children	Colored Children
41. high	air	5	50	8
	hill	20	92	28
	mountain (e)	173	125	132
42. working	man	1	93	72
	men	0	52	17
43. sour	apple (s)	37	96	1
	cream	0	52	0
	lemon (s)	95	60	53
	milk	31	124	97
	pickle (s)	41	110	183
	vinegar	91	53	33
48. hard	floor	16	54	0
	ground	2	51	1
	rock	38	92	178
	stone	102	113	6
	wood	66	30	8
	work	19	89	11
54. yellow	dress	9	129	67
	flower	39	105	2
	light	14	59	1
	orange	47	81	40
65. swift	horse	28	124	1
66. blue	dress	18	173	5
	flag	6	82	1
	sky	239	102	130
72. long	distance	81	6	1
	grass	4	75	0
80. square	box	36	80	136
	corner (s)	25	89	1
83. loud	noise	205	201	194
	talk	12	130	103
88. heavy	iron	70	213	37
	lead	60	35	60
	load	57	72	113
	weight	117	39	143
93. quiet	house	3	62	0

(IV. Adjective-noun continued)

Stimulus Words	Response Words	White Adults	White Children	Colored Children
94. green	dress	6	100	55
	grass	284	2	220
95. salt	meat	18	99	118
	water	34	60	2

V. Whole-part

1. table	leg (s)	23	78	17
3. music	notes	17	10	1
9. mountain	peak (s)	17	50	6
	rock (s)	18	49	79
10. house	room (s)	17	64	6
14. hand	finger (s)	112	199	186
17. butterfly	wing (s)	41	137	59
30. window	glass	316	421	199
	pene	82	62	116
33. foot	toe (s)	71	115	78
34. spider	legs	27	107	12
47. cabbage	leaves	11	62	1
49. eagle	wing (s)	24	92	1
62. sheep	wool	143	411	301
69. ocean	wave (s)	57	96	
70. head	brain (s)	90	162	96
	eye (s)	12	107	1
	hair	159	203	178
79. city	house (s)	55	29	1

VI. Part-whole

16. fruit	tree (s)	62	11	1
33. foot	limb	58	0	0
46. soldier	army	137	63	29
50. stomach	body	99	78	97
51. stem	plant	74	25	1
70. head	body	146	26	91
99. blossom	tree (s)	57	9	118

(Table 3. continued)

VII. Verbs				
Stimulus Words	Response Words	White Adults	White Children	Colored Children
1. table	eat	63	358	205
2. dark	see	0	47	0
3. music	play	7	81	1
	sing	12	153	238
5. man	work	17	168	143
8. eating	eat	0	51	33
9. mountain	climb	9	29	0
	climbing	0	0	42
10. house	live	33	165	144
14. hand	work	49	113	51
	write	3	52	33
16. fruit	eat	62	165	71
17. butterfly	fly	44	179	186
20. chair	sit	107	430	176
22. whistle	blow	95	189	123
	sing	75	6	12
24. cold	freeze	7	68	127
25. slow	walk	8	107	87
26. wish	hope	51	10	1
	want	66	99	183
27. river	swim	4	72	45
30. window	look	15	116	76
33. foot	walk	106	205	189
34. spider	crawls	1	54	2
35. needle	sew	134	449	208
37. sleep	dream	28	55	3
	rest	300	40	140
	wake	60	6	33
38. anger	fight	8	57	113
39. carpet	walk	15	88	22
43. sour	eat	0	54	0
46. soldier	fight	17	160	2
47. cabbage	eat	30	193	86
49. eagle	fly	46	120	163
50. stomach	ache	31	189	26
	eat	45	108	170

(VII. Verbs continued)

Stimulus Words	Response Words	White Adults	White Children	Colored Children
52. lamp	burn	20	70	19
53. dream	sleep	339	272	279
55. bread	eat	148	356	195
57. boy	play	20	84	2
60. Bible	read	31	116	115
63. bath	wash	102	143	80
64. cottage	live	17	79	6
65. swift	run	19	202	15
67. hungry	eat	126	337	186
70. head	think	9	59	1
71. stove	burn	12	103	1
	cook	24	62	55
74. whiskey	drink	232	279	177
77. hammer	pound	51	288	1
78. thirsty	drink	206	364	180
79. city	live	7	50	2
81. butter	eat	34	122	189
83. loud	holler	16	190	67
84. thief	steal	212	320	146
85. lion	roar	1	109	1
	eat	46	52	1
87. bed	lay	8	109	1
	rest	132	17	0
	sleep	345	453	253
89. tobacco	chew	28	214	3
	smoke	387	466	225
90. baby	cry	37	119	1
91. moon	shine	26	107	118
92. scissors	cut	347	802	284
96. street	walk	78	88	1
97. king	rule	10	107	0
98. cheese	eat	67	251	201
100. afraid	fear	197	14	1

(Table 3. continued)

VIII. Noun-adjective				
Stimulus Words	Response Words	White Adults	White Children	Colored Children
3. music	sweet	47	79	6
5. man	big	0	26	1
9. mountain	high	246	390	41
10. house	big	4	51	11
	warm	3	62	3
16. fruit	good	24	89	20
17. butterfly	pretty	39	89	20
22. whistle	loud	27	71	76
35. needle	sharp	152	56	7
36. red	bright	40	68	1
39. carpet	soft	78	28	0
44. earth	black	7	73	0
	round	61	82	38
46. soldier	brave	46	53	19
49. eagle	big	0	52	8
50. stomach	sick	10	85	0
51. stem	long	18	60	2
55. bread	good	21	90	72
60. Bible	holy	57	68	81
62. sheep	white	18	57	0
68. priest	Catholic	36	111	35
69. ocean	deep	87	23	2
70. head	round	21	58	0
71. stove	black	59	37	0
	hot	86	200	42
	warm	32	127	2
75. child	good	7	78	0
	small	32	45	0
79. city	big	9	124	0
	large	62	40	1
81. butter	soft	65	8	3
	yellow	80	117	35
85. lion	big	2	83	1
	fierce	36	119	0
90. baby	little	12	97	30
	small	42	90	12

(VIII. Noun-adjective continued)

Stimulus Words	Response Words	White Adults	White Children	Colored Children
95. salt	white	52	115	1
96. street	clean	33	101	0
	dirty	190	35	0
	long	36	87	0
	narrow	7	90	1
98. cheese	good	5	85	1
	yellow	29	13	68

IX. Cause-effect

4. sickness	death	115	8	3
52. lamp	light	650	648	308
63. bath	clean	120	192	156
	cleanliness	109	1	0
71. stove	fire	217	164	237
	heat	213	112	50
74. whiskey	drunk	31	138	85
91. moon	light	231	155	178

X. Verb-objects

8. eating	bread	46	178	44
	food	170	54	55
28. wish	fairly	11	64	0
77. hammer	nail (s)	283	404	221

Preferred Responses

In all behavior there are words, phrases, and responses which occur more frequently than others. In the comparative study of white and colored children the writer has chosen the three response words having the largest number of frequencies. The data for this comparison, as indicated in Table 4 were taken from Kent and Rossnoff's frequency tables for white adults, Woodrow and Lowell's frequency tables for white children, and the frequency tables presented in Table 2 for colored children.

The table shows in a striking manner how dissimilar are responses given by white children and colored children. Only for nine stimulus words are the three most frequent white children's responses also the three most frequent colored children's responses. These stimulus words with their responses are: eating (food, bread, table); window (glass, pane, look); needle (thread, sew, sewing); bread (eat, flour, good); bath (water, clean, wash); child (baby, children, girl); thirsty (water, dry, drink); loud (noise, holler, talk); green (grass, color, dress).

It may be observed that the favorite white children's reaction is one of the three most frequent of the colored children in 87 per cent of the cases, while the colored children's favorite reaction is one of the white children's

three most frequent in 78 per cent of the cases. It is interesting to note further that the average frequency of the favorite adult reaction is 264, of the favorite white children's reaction 270, and of the favorite colored children's reaction 198. It is evident then, that with the list of stimulus words here used, there is not much difference between colored children and white children in the average frequency of the favorite reaction. There is some overlapping in all comparisons of preferred responses.

Table 4. Comparison of preferred responses for white adults, white children, and colored children

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	*Colored Children
1. table	eat	76	358	200
	dishea		126	
	legs		70	
	chair	267		107
	eating			53
	wood	76		
2. dark	night	221	421	
	blsek	76	80	87
	see		57	
	light	427		275
	color			46
3. music	piano	198	198	53
	sing	153	153	238
	sweet	79	79	
	singing			51
4. sickness	doctor	142	116	
	bed		105	111
	ill	71	95	175
	hospitsl			48
	desth	115		
5. man	work		166	143
	hat		82	
	person		45	
	human	44		53
	woman	394		29
	male	99		

*Since there were 1,000 white adults and 1,000 white children, but only 500 colored children, the frequencies for colored children would be more comparable if they were multiplied by two. Chances are the trend in the preferred responses would be similar for 500 additional colored children.

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
6. deep	water	134	145	
	hole		257	126
	well	44	87	
	river			62
	down			61
	shallow	180		
7. soft	pillow	54	138	70
	bed		57	113
	cotton		57	
	comfortable			53
	hard	365		
	easy	34		
8. eating	food	170	54	51
	bread	46	178	43
	table	166	108	88
9. mountain	high	246	390	
	hill	184	91	87
	snow		61	51
	rock			79
	valley	90		
10. house	live	78	165	114
	warm	74	62	
	big		51	
	living			76
	school			59
	home	103		
11. black	dark	172	315	153
	color	129	104	93
	dress		63	
	night			57
	white	339		
14. hand	fingers	83	130	186
	work		113	51
	clock		65	
	rise			67
	foot	204		
	arm	68		

(Table 4. continued)

Stimulus words	Response words	Frequencies		
		White Adults	White Children	Colored Children
15. short	long	279	54	
	small	136	214	28
	little		157	101
	low			57
	tall	160		
16. fruit	apple	157	131	172
	apples	102	174	
	eat		153	70
	oranges			93
	vegetable	75		
17. butterfly	fly	44	179	183
	wings		114	59
	pretty		89	
	caterpillar			62
	insect	261		
	bird	64		
18. smooth	soft	79	132	
	even		70	
	nice	56	68	
	level			105
	hard	30		82
	click			78
20. chair	seat	127	131	45
	sit	107	430	171
	set		38	
	table	191		55
21. sweet	sugar	224	178	78
	candy	84	146	197
	good		213	
	sour	301		46
22. whistle	noise	173	85	94
	blow	95	89	123
	boy		79	
	loud			76
	sound	103		

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
23. woman	lady	41	243	73
	dress		96	
	mother		53	142
	human			82
	man	292		
	female	134		
24. cold	winter	120	103	90
	ice		84	
	freeze		68	123
	snow			83
	warm	166		
	hot	151		
25. slow	fast	316	65	138
	lazy		138	85
	walk		107	
	cart			68
	easy	63		
	small	62		
26. wish	want	66	99	167
	bone		85	
	fairy		64	
	something			76
	had			62
	desire	197		
27. river	hope	51		
	water	393	433	211
	lake	65	42	47
	swim		72	
	swimming			32
	stream	117		
28. white	color	170	116	179
	dress		149	
	light		125	
	lights			128
	snow	91		58
	black	308		

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
29. beautiful	pretty	113	280	220
	nice	73	169	
	lady		38	
	girl			110
	good-looking	86		71
30. window	glass	316	421	199
	pane	82	82	116
	look		116	76
	light	186		
31. rough	hard	38	144	91
	boy	38	89	
	mean		71	
	tough			78
	bad			77
	smooth	346		
33. foot	walk	106	205	189
	toes		81	78
	leg		79	
	feet			161
	hand	185		
	shoe	146		
34. spider	web	188	261	119
	legs		107	
	bug	136	83	
	bite			173
	poison			83
	insect	276		
35. needle	thread	160	72	183
	sew		449	206
	sewing		81	122
	sharp	147		
	pin	152		
36. red	color	254	298	226
	dress		85	117
	bright		68	
	hat			66

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
36. red (contin.)	blue	99		
	white	97		
37. sleep	bed	75	351	197
	night		95	
	tired		67	
	rest	300		139
	resting			58
38. anger	awake	94		
	mad	121	471	260
	cross	44	58	
	fight		57	111
	bad			47
39. carpet	mean			
	temper	149		
	floor	256	149	101
	rug	168	245	205
	walk		88	
40. girl	sweep			55
	soft	78		
	boy	350	40	153
	dress		240	
	child		45	89
41. high	woman	61		48
	female	77		
	mountain	157	120	132
42. working	hill		92	
	up		60	
	tall	57		84
	low	328		63
	hard	105	299	162
42. working	men		93	72
	men		51	
	ground			83
	labor	147		
	busy	51		

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
43. sour	sweet	349	75	
	milk		124	97
	pickles		89	183
	lemon	78		53
	vinegar	91		
44. earth	ground	166	223	178
	dirt	115	103	
	round		82	
	hard			122
	dark			106
	clay	71		
46. soldier	man	189	95	76
	war	97	205	214
	fight		160	
	march			68
	army	137		
47. cabbage	vegetable	394	140	
	eat		193	83
	leaves		62	
	eating			55
	green	44		34
	plant	48		
48. hard	stone	102	113	
	rock		92	178
	work		89	
	soft	376		37
	wood	66		
	brick			28
49. eagle	bird	568	373	128
	fly	46	120	63
	wings		49	
	paper			43
	flying	23		
50. stomach	organ	81		
	ache		189	
	eat		108	169
	sick		85	
	body	99		97

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
50. stomach (contin.)	eating food	102		60
51. stem	flower	259	367	186
	flowers		80	
	long		60	
	leaves			86
	leaf	97		52
52. lamp	plant	74		
	light	650	648	283
	burn		70	
	glass		50	
	see			73
53. dream	oil	49		41
	chimney	37		
	sleep	339	272	273
54. yellow	night	42	260	90
	bed		78	
	true			51
	vision	48		
55. bread	color	301	320	195
	dress		129	67
	flower		105	
	lemon			113
	white	70		
	orange	47		
56. boy	eat	148	356	195
	flour		95	112
	good		90	72
	food	191		
	butter	151		
57. boy	man	104	61	
	play		83	
	pants		63	
	girl	319		140
	basketball			105

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
57. boy (contin.)	male child	86		87
58. light	dark lamp bright darkness sun	231 93 85	99 251 74	86 195 61
60. Bible	book God read holy religion	338 57 89	224 124 116	 191 114 81
62. sheep	animal lamb wool animals fur	225 151 143	117 79 411	 301 97 53
63. bath	water wash clean cleanliness	339 120 109	295 143 192	165 80 146
64. cottage	house home lake school country	461 85 36	425 101 117	90 20 25
65. swift	fast run horse quick running slow	222 170 190	391 202 124	275 80 50
66. blue	color sky dress	256 239	318 102 173	226 130

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
66. blue (contin.)	flower green	54		53
67. hungry	food	136	55	
	eat	126	337	180
	bread		173	
	eating starve	64		128 90
68. priest	minister	178	168	21
	church	166	271	83
	Catholic king		111	
	clergyman	62		106
69. ocean	water	427	413	228
	sea	75	88	63
	waves		88	
	ships deep			47
70. head	hair	159	203	178
	brains		137	96
	eyes		91	
	body foot	146 64		91
71. stove	fire	217	164	233
	hot	86	200	
	warm		127	
	cooking			87
	cook heat			53
72. long	distance	213		
	far	81		
	grass		90	
	big		75	
	tall		55	
	short	413		178
	large	50		126 47

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
74. whiskey	drink	232	279	177
	beer		108	
	drunk		138	78
	drinking			67
	liquor	70		
	alcohol	50		
75. child	baby	193	185	165
	children		94	82
	girl		93	
	boy	64		73
	infant	122		
77. hammer	nail	185	218	219
	nails	98	186	
	pound		238	
	hit			112
	neiling			68
	tool	69		
78. thirsty	water	341	377	232
	dry	218	132	57
	drink	206	364	178
	animals			
79. city	town	258	110	95
	Minneapolis		218	
	big		124	
	state	74		130
	Wichita			116
	New York	99		
80. square	block	71	300	200
	corner		83	
	oblong		95	
	box			136
	round	250		66
	table	47		
81. butter	bread	206	467	163
	yellow	80	117	

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
81. butter (contin.)	eat		122	189
	cow			73
	milk	101		
82. doctor	medicine	136	136	118
	sick	448	448	212
	man	132	152	
	ill			52
83. loud	noise	201	201	194
	holler	190	190	67
	talk	130	130	163
84. thief	steal	212	320	133
	robber	126	229	
	burglar	118	64	
	stealing			30
	take			12
85. lion	animal	326	205	189
	fierce		119	
	eat		109	
	beast	67		134
	circus			63
86. joy	tiger	102		
	happy	121	260	292
	glad		203	82
	fun		182	
	playing			102
	happiness	215		
87. bed	sorrow	135		
	sleep	345	453	219
	night		106	
	lay		109	
	sleeping	41		120
	cover			25
88. heavy	rest	132		
	iron	70	213	
	hard		178	

(Table 4. continued)

Stimulus Words	Response Words	Frequencies		
		White Adults	White Children	Colored Children
88. heavy (contin.)	load		72	113
	weight	177		143
	lead			60
	light	273		
89. tobacco	smoke	387	466	217
	pipe	68	70	
	chew		214	
	smoking	98		73
	cigarettes			70
90. baby	child	238	172	160
	cry		119	
	little	42	97	
	stork			79
	girl			62
	infant	168		
91. moon	light	231	155	178
	night		128	
	bright		115	97
	shine			118
	sun	120		
	stars	93		
92. scissors	cut	347	802	282
	sharp	190	35	
	cutting	140	48	162
	cutters			37
93. quiet	still	136	300	182
	noise	113	70	
	sleep		72	
	silence			80
	room			57
	rest	68		
94. green	grass	284	272	220
	color	200	237	100
	dress		100	55
	yellow	64		

(Table 4. continued)

Stimulus Words	Response words	Frequencies		
		White Adults	White Children	Colored Children
95. salt	sugar	88		
	bitter		110	
	meat		99	118
	white		97	
	food			159
	eat	87		72
	pepper	142		
96. street	walk	78	88	
	dirty		85	
	car		79	198
	sidewalk	46		77
	cross			51
	road	91		
97. king	ruler	162	170	211
	crown	63	124	
	rule		107	
	queen	354		89
	throne			65
98. cheese	eat		251	201
	mouse		123	
	yellow	32	76	68
	rat			85
	butter	136		
	milk	106		
99. blossom	flower	467	486	230
	flowers	73	63	
	apple	50	87	
	tree			118
	bloom			64
100. afraid	fear	197		
	dark	114	151	
	scared	106	290	271
	dog		73	
	frightened			122
	whipping			24

The data presented in the association classifications are summarized in Table 5. This summary reveals a number of striking differences between white children and colored children. It may be noted that the white children gave more responses of the following types: contiguity, similarity, adjective-noun, noun-adjective, cause-effect, and verb-object. The colored children gave more responses for contrast, part-whole, whole-part, and verb types.

It should be noted that the colored children gave more responses to contrast than white children. The average frequency for contrast is 52.16 for colored children and 34.81 for white children. Do the above findings agree with Meumann (2) when he says that the great likelihood of opposites in less intelligent children are characteristic of adults? Is it not possible that Meumann's less intelligent children were more mature? Both improvement in intelligence and an increasing use of opposites go with increase in maturity. Do the above statements prove that colored children are more mature or less intelligent than white children of the same chronological age? Moreover, colored children's favorite association types are more like the favorite adult association types. Wrechner (5) has this to say about opposites, "Association of opposites is by far the commonest form of logical associations among adults,

Table 5. Summary of data on association types.

Class	Average per Stimulus Word White Adults	Average per Individual
Contrast	257.37	.257
Contiguity	87.00	.087
Similarity	18.43	.018
Adjective-noun	156.27	.156
Whole-part	84.13	.084
Part-whole	90.42	.090
Verb	86.62	.086
Noun-adjective	64.59	.065
Cause-effect	210.74	.210
Verb-object	170.00	.170
White Children		
Contrast	34.81	.034
Contiguity	165.60	.165
Similarity	17.31	.017
Adjective-noun	236.71	.236
Whole-part	163.60	.163
Part-whole	30.23	.030
Verb	193.35	.193
Noun-adjective	11.74	.012
Cause-effect	177.24	.177
Verb-object	234.66	.234
Colored Children		
Contrast	52.16	.104
Contiguity	56.79	.122
Similarity	10.91	.214
Adjective-noun	142.20	.284
Whole-part	89.26	.178
Part-whole	48.14	.096
Verb	212.14	.324
Noun-adjective	42.66	.085
Cause-effect	127.12	.254
Verb-objects	106.66	.211

and is about five times as frequent with adults as with children." If Wreschner's statement is true, then colored children may be more mature than white children of the same chronological age.

In the explanation of these obtained differences there are some other considerations that should be noted. In the first place the preceding conclusions are based upon the results obtained with a particular list of stimulus words. To what extent this fact limits their general validity it is hard to say. So long as the same words and the same procedure are used for both white and colored children, one should be justified in comparing them with respect to the types of their responses. In the second place the differences in vocabulary between white and colored children have to be carefully considered. Colored children have a lower social status which is not conducive to a large vocabulary. Poor white children have a low social status too, but they come in contact with white children of a higher social status and form new associations. Moreover, white children of low social status can go to many places of educational value because of their racial standing. Colored children form a number of associations at home, yet the parents are usually not well educated, so the associations formed are usually repetitions. They form most of their new

associations at school. Because of the low economic status of the parents of colored children, travel is limited. Very few colored children travel in the summer, so their experiences, and consequently their vocabularies, are not up to those of white children. Colored children get most of their knowledge of travel through reading geography and travel books; yet, the writer believes that if colored children were blessed with educational advantages, there would be less difference in associations.

Individual Responses

The tendency of white children, as compared with colored children, to give individual responses is set forth in Table 6. In order to compare colored children with white children in individual responses the writer took all responses with a frequency of one. For white children these responses were taken from Woodrow and Lowell's frequency tables. This comparison was made for only 90 stimulus words in order to include white adults. The largest number of individual responses for white children was 95 to the word long, whereas the largest number of individual responses for colored children was 33 to the word working. Table 6 indicates that the frequencies for white children are in nearly every instance twice as large for colored children. It is true there were only 500

Table 6. Individual responses for 90 stimulus words

Stimulus Words	White Children	Adults	Colored Children
1. table	49	66	9
2. dark	50	70	12
3. music	45	92	12
4. sickness	54	81	18
5. man	59	111	20
6. deep	49	70	15
7. soft	64	79	24
8. eating	46	82	19
9. mountain	52	82	9
10. house	55	96	26
11. black	49	62	15
14. hand	65	80	30
15. short	75	101	20
16. fruit	23	61	8
17. butterfly	29	77	19
18. smooth	41	91	29
20. chair	24	54	13
21. sweet	35	55	15
22. whistle	45	84	19
23. woman	54	89	23
24. cold	51	70	21
25. slow	30	151	24
26. wish	44	144	27
27. river	23	75	8
28. white	76	79	25
29. beautiful	33	109	16
30. window	48	52	15
31. rough	68	121	27
33. foot	68	69	16
34. spider	56	77	19
35. needle	24	35	4
36. red	65	70	27
37. sleep	67	171	25
38. anger	68	175	17
39. carpet	56	62	32

(Table 6. continued)

Response Words	White Children	Adults	Colored Children
40. girl	55	104	28
41. high	72	61	24
42. working	70	122	33
43. sour	53	50	17
44. earth	59	80	24
46. soldier	48	88	17
47. cabbage	36	58	18
48. hard	67	93	31
49. eagle	49	54	21
50. stomach	70	84	19
51. stem	69	57	22
52. lamp	37	39	9
53. dream	77	117	26
54. yellow	66	79	32
55. bread	46	52	15
57. boy	85	105	31
58. light	62	84	28
60. Bible	38	63	12
62. sheep	64	62	13
63. bath	39	46	16
64. cottage	48	75	17
65. swift	51	77	18
66. blue	64	65	15
67. hungry	87	92	16
68. priest	54	91	22
69. ocean	40	58	7
70. head	62	84	19
71. stove	30	44	9
72. long	95	116	31
74. whiskey	41	94	10
75. child	73	91	16
77. hammer	46	51	15
78. thirsty	28	47	5
79. city	53	78	21
80. square	67	105	25

(Table 6. continued)

Response Words	White Children	Adults	Colored Children
81. butter	32	48	13
82. doctor	39	98	19
83. loud	72	75	15
84. thief	50	98	12
85. lion	48	81	26
86. joy	47	104	14
87. red	31	54	10
88. heavy	65	100	18
89. tobacco	32	70	11
90. baby	54	85	18
91. moon	33	58	11
92. scissors	23	49	4
93. quiet	53	100	28
94. green	58	65	16
95. salt	60	80	25
96. street	62	89	22
97. king	84	72	17
98. cheese	32	75	15
99. blossom	69	57	8
100. afraid	49	124	15

colored children, but it is unbelievable that 500 more colored children would double the number of individual responses. They would add some, but they would also subtract some from the present list.

The question arises, what are the causes for these great differences in individual responses? As has already been stated, there is a lack of social and economic advantages for colored children. When a child does not have many new experiences, most of his associations are repetitions of the old ones. It is therefore possible that the white children's responses include the colored children's responses and more.

Total Number of Responses

The total number of response words is made up of all the response words given for 90 stimulus words. The frequencies of these responses to the stimulus words appear in Table 7. It must be remembered that there were 1,000 white children and 500 colored children to compare, so the total number of response words should be greater for the white children. The largest array of responses given by white children occurs with the word long, to which they gave 178 responses; whereas the colored children gave only 52 responses to the word smooth.

It looks very much as if a marked poverty of mental

Table 7. Total number of response words for 90 stimulus words

Stimulus Words	White Children	Adults	Colored Children
1. table	104	124	20
2. dark	104	114	23
3. music	84	172	27
4. sickness	123	145	33
5. man	150	169	40
6. deep	112	119	33
7. soft	163	155	43
8. eating	127	163	39
9. mountain	103	142	27
10. house	144	184	44
11. black	112	109	31
14. hand	148	146	52
15. short	136	159	38
16. fruit	70	123	21
17. butterfly	61	145	36
18. smooth	116	157	52
20. chair	77	107	30
21. sweet	82	95	24
22. whistle	114	151	39
23. woman	129	163	50
24. cold	118	123	48
25. slow	128	204	45
26. wish	106	232	46
27. river	73	127	21
28. white	125	135	38
29. beautiful	110	182	26
30. window	38	102	27
31. rough	153	201	42
33. foot	112	127	26
34. spider	105	126	29
35. needle	61	72	11
36. red	112	136	38
37. sleep	105	129	34
38. anger	99	251	22
39. carpet	106	135	41

(Table 7. continued)

Stimulus Words	White Children	Adults	Colored Children
40. girl	123	169	43
41. high	130	120	38
42. working	127	221	45
43. sour	89	91	30
44. earth	109	162	33
46. soldier	91	159	25
47. cabbage	80	126	29
48. hard	110	156	44
49. eagle	89	109	29
50. stomach	123	162	31
51. stem	103	120	34
52. lamp	63	78	14
53. dream	125	185	36
54. yellow	104	149	42
55. bread	83	104	23
57. boy	159	174	48
58. light	117	182	39
60. Bible	91	128	23
62. sheep	106	110	20
63. bath	71	93	22
64. cottage	80	142	25
65. swift	89	127	28
66. blue	108	116	26
67. hungry	136	173	23
68. priest	92	161	31
69. ocean	69	110	18
70. head	115	163	28
71. stove	57	91	17
72. long	178	178	39
74. whiskey	71	152	33
75. child	115	162	19
77. hammer	76	109	23
78. thirsty	52	86	11
79. city	109	131	32
80. square	122	195	31

(Table 7. continued)

Stimulus Words	White Children	Adults	Colored Children
81. butter	58	101	21
82. doctor	68	151	25
83. loud	115	140	26
84. thief	86	170	15
85. lion	93	137	36
86. joy	88	172	23
87. bed	72	112	15
88. heavy	109	158	33
89. tobacco	64	122	18
90. baby	104	150	28
91. moon	75	110	19
92. scissors	36	161	8
93. quiet	96	167	39
94. green	96	122	25
95. salt	107	146	41
96. street	119	163	29
97. king	135	120	26
98. cheese	60	146	26
99. blossom	63	99	13
100. afraid	92	189	24

associations, especially with concrete responses, characterizes the free associations of colored children. It would appear that the causes underlying this deficiency in total responses are closely related to the causes for the marked restriction in individual responses.

The total number of different responses for white children was 9,183, and their average number of response words per stimulus word was 102.33, whereas the total number of different responses for colored children was 5,432, and the average number of response words per stimulus word was 30.18.

CONCLUSIONS

The present work contains colored children's frequency tables for 100 stimulus words. The tables are composed of the responses of 500 colored school children from ages nine to 12 inclusive, taken from the fourth, fifth, and sixth grades. The list of stimulus words contains 90 words from the Kent-Rosenoff tables and ten from Woodrow and Lowell's frequency tables. Comparisons were made between the mental associations of white children and colored children in the following ways: preferred responses, association types, individual responses, and total number of responses.

The main points established by this comparison are as follows:

1. In general, colored children's mental associations differ substantially from those of white children. The frequency tables for white children could not be used for colored children.

2. A substantial difference exists between white and colored children in the frequencies of various types of associations. The types which occur more frequently with white children than with colored children are contiguity, similarity, adjective-noun, noun-adjective, cause-effect, and verb-object. The types which occur more frequently in colored children than in white children are contrast, verb, part-whole, and whole-part.

3. The most outstanding finding in this study is that colored children gave fewer individual responses than the white children gave. This is probably due to the limited experiences of colored children. Limited experiences result in small vocabularies and consequently in limited individual responses.

4. White children made a much larger number of different responses than did the colored children. This is also, no doubt, indicative of the limited experiences of colored children.

5. With only nine words are the three most frequent responses the same for both white and colored children.

6. The data revealed no clear evidences of emotionality between colored children and white children. The marked reduction in individual responses does not probably indicate only lower emotionality in colored children, even though individual responses are indications of emotional associations. In fact it may indicate nothing significant about the comparative emotionality of white and colored children.

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